

ABSTRACT OF THE INVENTION

As disclosed herein, the present invention is directed to unique gene cassettes, and methods for their use, wherein the gene cassettes comprise multifunctional transgenic DNA sequences that completely, or nearly completely, excise themselves from the genome of plants into which they are introduced. The excision process is triggered in response to specific internal or external stimuli by means of excision/recombinase systems in unique combinations and orientations within the multifunctional transgenic sequences. Complete, or nearly complete, removal of the heterologous DNA significantly reduces the possibility of uncontrolled propagation of the transgenic species and may, more importantly, permit crops produced from transgenic plants to be co-mingled with non-transgenic crops for marketing purposes.